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RECORD OF ORAL HEARING

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ULRICH MULLER, GUSTAV PEUKER, DETLEF SONNENSCHEIN, DETLEF WINTER, MICHAEL DEGNER, and GERD THIEMANN

Appeal 2008-1139
Application 10/677,880
Technology Center 2600

Oral Hearing Held: April 15, 2008

Before KENNETH W. HAIRSTON, ROBERT E. NAPPI, and KARL D. EASTHOM, Administrative Patent Judges

ON BEHALF OF THE APPELLANTS:

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The above-entitled matter came on for hearing on Tuesday, April 15, 2008, commencing at 9:00 a.m., at The U.S. Patent and Trademark Office,

600 Dulany Street, Alexandria, Virginia before Virginia Johnson, Notary Public.

MS. BOBO-ALLEN: Calendar Number 39, Appeal Number 2008-1139, Mr. Kolomayets.

JUDGE HAIRSTON: Thank you. Can I get you to spell your name for the record?

MR. KOLOMAYETS: Sure. That's K O L O M A Y E T S.

JUDGE HAIRSTON: Thank you and you may begin anytime you're ready.

MR. KOLOMAYETS: Thank you. Honorable members of the Board, my name is Andrew Kolomayets and I'm here on behalf of the Applicant, Applicants Ulrich Muller and others, in Serial Number 10/677,880. The present invention that we've described in this application is in the field of metal rolling mill technology. And, the claims of the application are directed to a method for continuously measuring the flatness of a hot moving, of a moving hot metal strip and of a method for continuously measuring the flatness of an end face of a coil when that metal strip has been rolled up.

In each method a shadow in the form of a line pattern is projected onto the surface of either the hot metal strip or of the end face of the coil. The line pattern formed on the hot metal surface or on the end face is then viewed by a camera and as set forth in the Dependent Claims, the line pattern, that line pattern is then compared continuously to a reference pattern that is stored in a computer. With that information, that comparison of the detected line pattern to the reference pattern, it is then possible to

automatically control the finishing train and make the necessary adjustments to the, the coil, the coiled metal strip.

In each case, whether it's the end face of the coil or the hot metal strip coming out of the roll stand, the measurement is contactless, meaning there's no physical contact with the metal strip per se. In the final Office Action, the Office rejected all of the claims under 35 U.S.C. § 103 based on two references: U.S. Patent Number 5367578 to Harding and the 1983 article to Pirlet.

As with all obviousness inquiries, we begin with the scope and the content of the prior art, so I'll spend a little time just summarizing what Pirlet and Harding disclose.

Again in the case -- in this case the, the primary piece of prior art here is the article by Pirlet which describes a contactless system, non-contact system of measuring flatness of a hot metal strip by projecting a series of laser points onto the surface of that hot metal strip, and then detecting the flatness of the surface thereby using a camera.

As in our application in our method the metal strip in Pirlet is moving and it is hot as it exits the roll stand. Again, what it does not show is the projection of a grid or a series of lines onto the surface of the metal strip as mentioned, it uses the known laser technology to illuminate the hot metal strip and measure it accordingly.

Now, the patent in Harding, the second piece of prior art referenced by the Office, discloses a method for detecting defects in panels such as automobile panels by projecting a line pattern onto the panel, panel and then viewing the reflected image off of that subject, of that work piece of the panel by an external camera. The panels or the pieces being viewed and,

and, and measured in Harding are not necessarily flat. They may be contoured, curved as panels in an automobile often are. Also, the defects that are being looked at by Harding are not limited to and, and in most cases not directed to measuring the flatness of the panel, but rather the defects that Harding is looking at are things such as dents and scratches and the metal finish and things such as dirt dimples on the panel. It's a quality control as we understand it. It's a quality control method looking for, for the most part different types of defects in a panel that, again, may not necessarily be flat.

In addition, Harding requires that the panel that's being viewed be stationary. It, it --

JUDGE HAIRSTON: But, this is part of the automobile assembly line probably, isn't it? I mean, it doesn't say it has to be stationary.

MR. KOLOMAYETS: Well, I think as I talk about --

JUDGE HAIRSTON: Assembly lines move, right.

MR. KOLOMAYETS: Assembly lines move, but I think what Harding is -- in Harding because he is taking pictures and, and he says this in a couple of spots where he is required to take pictures of the same area from different locations. He is, in effect, talk -- I think I don't believe this is being used in, in an assembly line environment. I think this is a stationary piece that's being viewed from a variety of points which are then being compared.

So, again, we're talking about a finished panel here and not the raw metal that's being formed in, in our process. It's the position of the Office that it would have been obvious to take this system of Harding and use it in the Pirlet moving strip environment.

JUDGE HAIRSTON: Well, Harding is the primary reference, right.

MR. KOLOMAYETS: Well, Harding -- I, I, I guess it -- Harding may be the primary reference in that it discloses the, it discloses a grid and, and a means for projecting something onto a surface. I think what the Examiner was saying in the final Action was, you can take that system, Pirlet discloses a, a moving strip, hot metal strip, flatness measuring system much like what, what we, what we are doing, but without the detection and the measuring apparatus. And, I think what the Examiner is saying is take the apparatus and the system of Harding and you can use it in the system of Pirlet. Whether that makes Harding the primary reference, then, then that, then that's the way it is.

But regardless, the combination of Harding and Pirlet is, is something that we, we take issue with. It's our position that one of ordinary skill would not have been motivated to combine Harding with Pirlet because of the differences between the prior art and the claims that are pending in this application.

More specifically, it's our position that one would have had no reason. One of ordinary skill would have had no reason to look to the Harding system or think that it would be compatible with the system in Pirlet. Now, before, before getting into the guts of the argument, this Appeal and the Brief were all filed before the Supreme Court's decision in KSR. So, we approach today's hearing cognizant of the fact that the landscape may have changed a little bit here.

JUDGE HAIRSTON: Yes.

MR. KOLOMAYETS: That the, the teaching suggestion motivation test to considering obviousness is not to be rigidly applied. It's not to be considered a rigid formula, and we also understand that people of ordinary

skill, persons of ordinary skill are allowed to employ common sense and look maybe outside the specific field in which --

JUDGE HAIRSTON: So, what in KSR supports your position?

MR. KOLOMAYETS: Pardon me.

JUDGE HAIRSTON: What in KSR supports your position?

MR. KOLOMAYETS: Well, I think what supports our -- what, what in KSR supports our position is that it did not entirely do away with the requirement that there still must be some reason in the prior art for combining the two pieces.

JUDGE HAIRSTON: Um-hum.

MR. KOLOMAYETS: And, that's really the heart of our argument here, is that one of ordinary skill would not have thought that Harding would be viewing Harding and would have thought Harding would be applicable to a system like Pirlet or to a system like ours, and there are three -- basically three reasons why we think that's the case.

First of all, it's just the, the nature of the, of the Harding method and system itself. Again, Harding is not describing a system where he is worried only about the flatness of a metal strip. He's looking at, in many instances, a contoured or a shaped piece of metal. He's not really dealing with metal strips per se at all. Again, he's working with these formed panels that are often used in the automobile industry; make up parts of the car.

JUDGE EASTHOM: I don't understand why that isn't applicable to a, you know, a flat piece of metal. He's actually doing more than just, you know, I was looking at Column, the last Column before the claims, and he says, some isolated defects are actually a single change in panel height almost like a subtle buckle in the material. Why wouldn't that apply to, for

example, a piece of metal that you're trying to determine the flatness if it was bent, for example.

MR. KOLOMAYETS: Well, it's, it's -- I, I can't say that he doesn't -- he's not totally uninterested in if it's intended to be a flat part of the panel then yes, he's looking for deviations from that flatness, but he is -- I don't know, if you think about a car panel itself, I don't believe that it's -- you find too many pieces that are pristinely flat and are supposed to be flat. They usually have some, some contour to it. And, it's unlike; I would argue, a truly flat metal strip, a thin metal strip --

JUDGE EASTHOM: What about your coil? That's, that's not measuring flatness, is it, your coil?

MR. KOLOMAYETS: It's measuring, that is measuring flatness from a different perspective. At that point once we have coiled the, the, the sheet, we're not longer looking at the flatness of the sheet, but what we are looking at is the end face of the coil to make sure that that strip has rolled on correctly. So, at that point, we're shining. We're, we're, we're shining our image onto the end face of the panel to make sure that we don't have strips that have coiled incorrectly. So, that's, that's a difference.

So, Harding is, is I think he's not really dealing with flat metal strips of the type that we are here. And, again he's looking at more than simply dents and, and, and buckles, he's looking at scratches. He's looking at things like dirt dimples. He's really looking at the finish, I would argue, of that panel. So, our first point is that Harding is really not in the same field as we are. He's not looking at the same thing. And, he is not necessarily concerned with the same things that we are.

Secondly, another reason why we believe that Harding would not be suitably combinable with Pirlet, is that Harding is -- our understanding is Harding is dealing with a static system. In Harding, he is measuring an object that is fixed and is stationary, and is not moving, and is certainly not moving at the speed that our hot metal strip is moving. That brings us --

JUDGE HAIRSTON: The speed that -- the speed is not in your claims.

MR. KOLOMAYETS: Speed is not in the claims.

JUDGE HAIRSTON: That's a relative term. Moving is a relative term.

MR. KOLOMAYETS: Right. I'll concede that speed is not in our, is not in our claims.

JUDGE NAPPI: Does Harding specifically say that it's stationary, or are we just interpreting that because he never says --

MR. KOLOMAYETS: If he says it -- bear with me for one minute, see if I highlighted it. Harding -- I don't know that Harding comes out and says it, but I think it's implied in the, in the description of the Harding method where he says, for example, at Column 4, several pictures with locations physically -- pardon me, Column 4 beginning at Line 49. I'll say Line 48. In order to determine what area on Panel 16 one is looking at, several pictures with locations physically noted by an artifact can be used to construct an overlay to analyze the photos. He says in Column 6, Line, beginning at about Line 8, various perspectives of the panel are needed. He is not working in a system in a real time system where something is moving; it's being -- the grid is being reflected off the surface of Harding. That information is then being conveyed to, to a computer processor that's got

some reference information on it, and then changes accordingly are made to a finishing train as, as in, as in our, in our method.

JUDGE NAPPI: Now, Harding says you keep that as record to, to deal with your suppliers that may have sent you --

MR. KOLOMAYETS: Pardon me.

JUDGE NAPPI: Harding teaches that you keep all of that information as a record to deal with disputes with your suppliers.

MR. KOLOMAYETS: Right.

JUDGE NAPPI: But, that doesn't mean that it's not done while the things moving along. That's all I'm getting at is I'm just wondering why you're saying it's necessarily stationary.

MR. KOLOMAYETS: Well, because --

JUDGE NAPPI: Different, different positions, you can have cameras in four different positions watching something that's moving, and they'll have four different

-- what's the word used? -- aspects or perspectives of the same product, but that doesn't necessarily mean that the object is stationary. That's why I was wondering is there anyplace --

MR. KOLOMAYETS: Right.

JUDGE NAPPI: -- in there that actually says that it's looking stationary object, you know.

MR. KOLOMAYETS: Um-hum.

JUDGE NAPPI: You, you can have different perspectives of a moving object.

MR. KOLOMAYETS: Right. Again, I, I believe it's to us at least it's implied that Harding is dealing with a, a stationary system because of,

because he is required to take pictures from different perspectives and analyze them. If he is, if he is shining a grid on something that is moving, but then aiming the camera at the same place where, where that is, that, that grid has been projected, he's got to be synchronized, and he doesn't suggest that he is.

So, the implication at least is that Harding is, is talking about a stationary system. If it were otherwise, he would -- his, his -- the area that had been that the grid had been projected upon will have already moved while he's taking his picture from his variety camera. He'd have to do that. He'd have to synchronize that with each and every one of his camera-and-detectors combinations, which he certainly does not suggest in his specification.

So, it's our understanding that Harding was talking about a stationary system and not a moving type dynamic system as, as we've got in our, in our method. And, and, and as Your Honors pointed out, he, he collects this information and he uses it not to make any sort of adjustment in real time as the, as the piece is moving down an assembly line. He uses it as primarily for record keeping. Ours is much different than that. We have a reference, we have reference information built into the computer and that image that is being generated and viewed is being relayed to the computer, and --

JUDGE HAIRSTON: Your reference is to the Dependent Claim, right? It's not in your Independent Claim?

MR. KOLOMAYETS: That's right, it is in the Dependent Claim, that's correct; and, that information that is used by the computer to make the necessary, necessary adjustments to the, to the drive train. Again, all of this happens in real time. And again, our point about Harding was that he

doesn't disclose that type of synchronization of detector to camera that would suggest to us that he is capable of operating in a, in a, in a moving system. And, we think that one of ordinary skill in the art would look at Harding, would recognize that and would see that inapplicability of a system such as that to the more dynamic hot moving metal strip system that we have claimed in our application.

Finally, Harding is talking about surfaces that are reflective. He is, he is placing an image onto a grid pattern onto a reflective surface and what's being viewed there is a reflection off of that surface. So, by definition his surface is reflective. That's much different than say, for example, the subject matter of Claim 8 where we're talking about a hot metal strip. When that metal strip comes out of the roll stands, it's coming out in a very hot red orange color; looks something like this if you can see that picture. It's not going to reflect anything, and there's not going to be a reflection that is being measured. What we are doing is we're conveying shadows onto that orange background and then viewing that. And, I think one of ordinary skill with knowledge of the processing system knowing that when you're working at temperatures of about 1000 degrees centigrade that strip is coming out super red hot. And, it's not going to reflect. And, he wouldn't then view Harding as a suitable --

JUDGE NAPPI: Counsel, how do you see the shadows if it's not reflecting?

MR. KOLOMAYETS: Pardon me.

JUDGE NAPPI: How do you see the shadows if it's not reflecting?

MR. KOLOMAYETS: Well, you're seeing -- what you're seeing is the shadow on the orange strip. You're not -- it's a subtle difference

between, between seeing something that's reflected as opposed to the dark shadow lines that are created like --

JUDGE NAPPI: Well, if you have a shadow and a non-shadow, one part is reflecting more light than the other, isn't it?

MR. KOLOMAYETS: Well, it's -- I think maybe the difference here is between what we're, what we're actually measuring is that we're measuring the dark shadow, the darker shadows that are coming through our -- the light that's coming through our grid is putting a dark shadow, dark shadows onto the surface of the hot, of the red, of the orange --

JUDGE NAPPI: Um-hum.

MR. KOLOMAYETS: -- surface. In Harding, he's, he's, he's also projecting through a slide, but what we're then looking at is the reflection. We're looking at the reflection and I'm sorry I left my mirror in the, in my case. What I wanted to, to show you was that because of he's using a reflective surface, positioning of that surface it really has to be stable and it really has to not be moving in a, in a vertical direction; otherwise you're going to lose -- you're not going to be able to see the reflection of those grids if, for example, you have some movement of your reflective surface either in the up and down direction or a tilt of it.

It's what, it's what we describe in the application as fluttering. And, it's a common phenomenon in the hot metal strip processing where the strip is actually rising and, and, and off of the, off of the, off of the rollers. If you had that happen with a reflective surface or if you had some kind of tilt, your detector may not actually pick up what is being shown from the opposite end. And, that's, that's the difference between I think a reflective, the reflective surface that you've got, the reflective surface that Harding talks

about, and the orange opaque solid surface -- well the opaque color that we've got in our moving metal strip.

So, we're, we're -- you wouldn't actually be able to see those grid lines if you had a fluttering effect of a reflective surface where you'd still be able to see that with the hot orange strip in our method.

JUDGE HAIRSTON: Counsel, I've read your client's Declaration. The trouble is his claims are not limited to red hot. A, a very hot --

MR. KOLOMAYETS: Well, I think --

JUDGE HAIRSTON: -- no temperature is recited, its just hot.

MR. KOLOMAYETS: It's hot, but I think the understanding is that we're talking about when we're talking about something hot in this area, we're talking about people would know that we're talking about something that's at a very high temperature, and that it comes out looking, looking like this.

So, the fact that Harding is dealing with reflective surfaces; we're dealing with something other than that, we believe would lead one of ordinary skill away from Harding, and not consider Harding as a suitable piece of prior art for combination with Pirlet.

One last couple of last points then with respect to the Declaration, Your Honor is correct, we submitted the Declaration of Dr. Muller where many of the things I've said today have been set forth by, by an expert in the field. It seemed to us that in the Office Action in the final rejection that the Examiner had down played the importance of that Declaration that somehow maybe it wasn't given the consideration that it deserves because it was given by one who according to the Examiner stood to benefit from it.

I don't think that disqualifies the Muller Declaration. I think if in a recent Federal Circuit case --

JUDGE HAIRSTON: That alone, we understand that. That alone will fly --

MR. KOLOMAYETS: Yeah.

JUDGE HAIRSTON: -- yeah --

MR. KOLOMAYETS: Okay.

JUDGE HAIRSTON: -- you're exactly right.

MR. KOLOMAYETS: And then Claim 9 finally -- or pardon me, Claim 11 which deals with the measuring the flatness of an end coil. I just wanted to draw one distinction there, and that is that the arguments on the -- that I presented here today on the hot metal strip and the difficulties of measuring the hot metal strip are really not applicable to that one because at that point you have actually cooled your strip. It's being coiled, and so we're not arguing that the, the challenges of measuring the flatness of hot strip apply here; however, we will say that Pirlet does not disclose measuring the flatness of an end coil. And, similarly Harding, which has nothing to do with metal strips at all, does not disclose or suggest the need to measure the flatness of an end coil, as we have recited in Claim 11. And so our argument that the combination of Pirlet and Harding would also not apply to Claim 11 and it's Dependent Claims. And if there are any questions --

JUDGE HAIRSTON: Any other questions? Any questions. Thank you.

MR. KOLOMAYETS: Thank you.

JUDGE NAPPI: Thank you.

(Whereupon, the proceedings concluded on April 15, 2008.)